

UNIT PRICE CATALOG

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Ave Su
Base Un

System	Description	Cost
col_spnd_ftg	3000 PSI concrete	
1	forms, rebar, concr, placing, finish	\$204.00
spnd_ftg	3000 PSI concrete	
1	Not Req'd (Trench Footing)	\$0.00
2	12" thick x 18" wide; forms, reinf, direct chute	\$12.06
3	12" thick x 24" wide; forms, reinf, direct chute	\$13.71
4	(For Precast Foundations) 12" thick x 24" wide; 3/4" stone bedding	\$2.22
fdn_drain		
1	PVC 4" dia; gravel drain bed	\$4.00
2	PVC 6" dia; gravel drain bed	\$5.00
fdn_wall	4' high foundation wall	(deduct of 4
1	Poured-8"; bitum/damp; sill plates	\$20.44
2	Poured-10"; bitum/damp; sill plates	\$23.60
3	Poured-10"; brickledge; bitum/damp; sill plates	\$31.16
4	Poured-12"; bitum/damp; sill plates	\$26.08
5	Poured-12"; brickledge; bitum/damp; sill plates	\$33.64
6	Block-8"; grouted; bitum/damp; parging; sill plates	\$37.84
7	Block-10"; grouted; bitum/damp; parging; sill plates	\$42.44
8	Block-12"; grouted; brickledge; parging; bitum/damp; sill plates	\$47.28
9	Pre-Cast Wall System; bitum/damp; sill plates	\$22.80

FIGURE 2a

Location Factor: 0.94			MASTER [BASELINE] RCM		
Sales Tax: 6.0%			Berrien City, MI		
Ave Sub Gen'l Conditions: 2%			Cost Adjustments		
Base Unit	Adjusted Unit	Unit	Loc_Fctr	S_Tax	Sub_GC
Cost	Cost	Unit			
\$204.00	\$201.35	CY	0.94	3%	2%
\$0.00	\$0.00	LF			
\$12.06	\$11.90	LF	0.94	3%	2%
\$13.71	\$13.53	LF	0.94	3%	2%
\$2.22	\$2.19	LF	0.94	3%	2%
\$4.00	\$3.95	LF	0.94	3%	2%
\$5.00	\$4.94	LF	0.94	3%	2%
educt of 4*\$0.70 eliminates 1" rigid insul)					
\$20.44	\$20.17	LF	0.94	3%	2%
\$23.60	\$23.29	LF	0.94	3%	2%
\$31.16	\$30.75	LF	0.94	3%	2%
\$26.08	\$25.74	LF	0.94	3%	2%
\$33.64	\$33.20	LF	0.94	3%	2%
\$37.84	\$37.35	LF	0.94	3%	2%
\$42.44	\$41.89	LF	0.94	3%	2%
\$47.28	\$46.67	LF	0.94	3%	2%
\$22.80	\$22.50	LF	0.94	3%	2%

FIGURE 2b

SECTION 7: BUILDING SYSTEMS



This final section will explore and document your quality expectations for various building systems in your new home. These decisions are important as they will directly affect the construction budget. In addition, building envelope selections (walls, roof, windows, insulation) will also impact energy heat loss calculations.

01 Foundation

011 Standard Foundations

- ☐ Sand/Gravel Soil ☐ Sand/Clay Soil ☐ Problem Soils (e.g., water, low soil bearing capacity)

02 Substructure

021 Slab on Grade

- ☐ 4" thick (standard) ☐ 5" thick ☐ 6" thick

022 Excavation: Basement

- ☐ No Basement ☐ Crawlspace
☐ Full Basement ☐ Partial Bsmt (some of Ground Floor living area on slab)

023 Basement Walls

- Wall Material ☐ Poured concrete ☐ Concrete block/parging ☐ Wood foundation
☐ "Superior" Precast Foundation Wall System w/1" insulation

Waterproofing

- ☐ Standard Protection ☐ Premium Protection

- Insulation ☐ None ☐ 1" Rigid (R-5) ☐ 2" Rigid (R-10)

- ☐ 3" Rigid (R-15)* (recommended)
 *Energy Star

FIGURE 3a

03 Superstructure

031 Floor Construction

NOTE: Priced from least to most expensive per SF of floor system (left to right)

- | | | |
|--|--|---|
| <input type="checkbox"/> 1 Composition "I" Joists
(Standard spans to 24')
* 1" x 3" Ceiling furring not required | <input type="checkbox"/> 2 Dimension lumber (e.g. 2x12)
(Standard spans to 19')
* Material readily available | <input type="checkbox"/> 3 Truss Joists
(Standard spans to 24')
* Utilities easily pass through |
|--|--|---|



032 Roof Construction

- | | | |
|--|--|---|
| House <input type="checkbox"/> SIP / Timber Frame | <input type="checkbox"/> Prefab trusses | <input type="checkbox"/> Dimensional lumber (e.g. 2x10) |
| Garage <input type="checkbox"/> SIP / Glu Lam Ridge Beam | <input type="checkbox"/> Prefab trusses | <input type="checkbox"/> Dimensional lumber (e.g. 2x10) |
| Dormers <input type="checkbox"/> SIP | <input type="checkbox"/> Dimensional lumber (e.g. 2x8) | |
| SIP Thickness <input type="checkbox"/> SIP Not Used | <input type="checkbox"/> 8.25" OSB/OSB (R-34) | <input type="checkbox"/> 10.25" OSB/OSB (R-42) |
| <input type="checkbox"/> 4.5" OSB/OSB (R-18) | <input type="checkbox"/> 6.5" OSB/OSB (R-27) | <input type="checkbox"/> 12.25" OSB/OSB (R-45) |
| SIP Interior Finish <input type="checkbox"/> 1/2" Gypsum Board | <input type="checkbox"/> Tongue & Groove "T&G" (pine or cedar) | |

033 Stair Construction

- | | | |
|---|--|---|
| Basement Stair <input type="checkbox"/> Basement stairs, open riser | <input type="checkbox"/> Pine treads/risers, box stairs, WALLS 2 SIDES/handrail only | <input type="checkbox"/> Pine treads/risers, box stairs, balusters/handrail, newel post |
| Ground Floor Stair <input type="checkbox"/> Pine treads / risers (pine), box stairs, balusters/handrail, newel post | <input type="checkbox"/> Hardwood treads / risers, box stairs, WALLS 2 SIDES, balusters/handrail, newel post | <input type="checkbox"/> Hardwood treads / risers, box stairs, balusters/handrail, newel post |
| <input type="checkbox"/> Hardwood treads / risers, box stairs, balusters/handrail, newel post | <input type="checkbox"/> Curved stairway (hardwood), open 1 side | <input type="checkbox"/> Curved stairway (hardwood), open 2 sides |
| Auxiliary Stair <input type="checkbox"/> None | <input type="checkbox"/> Pine treads / risers (pine), box stairs, handrail, newel post | <input type="checkbox"/> Attic stair, folding; pine; 8'-6" |
| <input type="checkbox"/> Hardwood treads / risers, box stairs, handrail, newel post | <input type="checkbox"/> Hardwood treads / risers, box stairs, handrail, newel post | <input type="checkbox"/> Spiral stairs, oak |
| | | <input type="checkbox"/> Spiral stairs, metal |

FIGURE 3b

ZIP CODE	CITY	STATE	Regional Adjustment Factor	Winter Design Temp	
				99%	97.5%
35000	Cullman	AL	0.85	17	21
35200	Birmingham	AL	0.86	17	21

FIGURE 4a

Deg Days	Deg Days	Sales Tax	Sub GC	Escalation
Heating DD	Cooling DD	Tax Rate	2%	1.50%
2,823	1,881	4%		
2,823	1,881	4%		

FIGURE 4b

ENERGY MODEL

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TOTAL FINISHED AREA (TFA): 4,778 SF
TOTAL CONSTRUCTED AREA: 8,358 SF

MASTER FILE
Berrien City
4 Bedroom

Enter:	State	Residential Energy Code	State Mandate	Comments
MI	Michigan	Michigan Uniform Energy Code Part 10 Rules, less stringent than 1992 MEC	Yes	Prior to June 22, 1977, the state adopted ANSI/ASH-100-1975, which was repealed the 1995 adoption of ANSI/ASH-100-1995 by April 1, 1997, provide construction information. The Michigan

Envelope Heat Loss	Area (SF)	R-Value	U Factor	Delta T	Heat Loss (Btu/hr)
Heat Loss-Basement Walls	1,821	6	0.16	22	6,359
Heat Loss-Basement Floor (or Ground Fir Slab)	3,198	25	0.04	22	2,814
Heat Loss-Walkout Wall	1,500	14	0.07	69	7,555
Heat Loss-Walls	448	14	0.07	69	2,206
Heat Loss-Windows (low-E) Default (R-3)	565	3	0.33	69	13,455
Heat Loss-Windows Standard Glazing (R-2)	0	2	0.50	69	-
Heat Loss-Windows (low-E) Triple Glaze (R-6)	0	6	0.17	69	-
Heat Loss-Doorwalls	126	3	0.33	69	2,998
Heat Loss-Doorwalls	0	3	0.33	69	-
Heat Loss-Doors	84	5	0.20	69	1,159
Heat Loss-Roof SIP (on Timber)	1,283	36	0.03	69	2,439
Heat Loss-Roof SIP (on SIP)	0	0	0.00	69	-
Heat Loss-Attic (Uninsulated Roof Rafter)	547	16	0.06	69	2,363
Heat Loss-Skylights	0	3	0.33	69	-
Building Envelope Heat Loss					41,268

Envelope Tightness
Select > 4 Energy Star Very Tight 0.25 ACH (Air Changes / Hour) Design Occupancy: 5

FIGURE 5a

MASTER [BASELINE] RCM

EA: 4,778 SF
EA: 8,368 SF
 Berrien City, MI
 4 Bedroom, 5 Bath

Comments

Prior to June 22, 1977, the state of Michigan had no building energy efficiency requirements. On July 27, 1985, the state adopted ANSI/ASHRAE/IES Standard 90A-1980 statewide. SB 719, signed in early January 1996, repealed the 1995 adoption of the 1993 MEC. The legislation directed the state construction code commission to, by April 1, 1997, provide cost-effective standards and establish a program to provide home buyers with energy rating information. The Michigan Uniform Energy Code Part 10 Rules were adopted March 31, 1999.

Delta T Heat Loss (BTUH)

22	6,359
22	2,814
69	7,555
69	2,206
69	13,455
69	-
69	-
69	2,898
69	-
69	1,159
69	2,439
69	-
69	2,383
69	-
Type Heat Loss	41,268 BTUH

n Occupancy: 5

3	97.5%-99% Design Dry Bulb Temp (deg F)
72	Indoor Design Temp. (deg F)
69	Delta T

72,113	Total BTUH Demand
1.4	Furnace Sizing Factor
127,000	Furnace Size at 80%
Meets Energy Star:	
113,000	Furnace Size at 90%
108,000	Furnace Size at 94%
104,000	Furnace Size at 100% (ELECTRIC)

FIGURE 5b

Infiltration / Ventilation	CFM	ACH	Constant	Volume	Delta T	Heat Loss (BTU)
Natural Infiltration	303	0.25	1.08	72,764	69	22,593
Mechanical Ventilation w/AUX	424	0.35	1.08	72,764	18	8,251
75% AAUX Efficiency	141.09	Min Target CFM				
Envelope + Infiltration Heat Loss =						
Furnace AFUE =		90%	2			<Select Furnace Eff.
Furnace Size =	80,126	BTU/h				
D = Degree Days =	6,439	Berrien City, MI				
T = Temp diff =	69	degrees				
V = Fuel value =	1,052	BTU/h per				cu ft natural gas
V = Fuel value =	91,743	BTU/h per				Gallon propane
V = Fuel value =	3,413	BTU/h per				KWh electric
CF1 =	1.36	Correction factor that includes the effects of rated full load efficient and energy conservation devices.				
CF2 =	0.71	Empirical correction factor for heating effect versus 65 degrees F c				
E = Annual Energy Consumption =	164,715	cu ft natural gas				
	1,889	gallons of propane				
	-	KWh of electricity (100% Efficiency)				

Annual Heating Cost =	\$965.35	NGAS
Annual Heating Cost =	\$1,794.32	PROPANE
Annual Heating Cost =	\$0.00	ELECTRIC

FIGURE 5c

HOME SPECIFIC QUALITY / COST SELECTIONS

237 System Selections

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Selection
Switches

TOTAL FINISHED AREA: 4,770 SF
TOTAL CONSTRUCTED AREA: 8,350 SF

Bentley City, MI
4 Bedroom, 5 Bath

P21

BASELINE

SYSTEM

SUBSYSTEM

01 Foundations

01 Standard Foundations

01.10	Spread footings (timber columns)	1	12" thick, 30"x30", forms, rebar, concrete	9	NCOLB	\$46.61	\$419	\$419	\$0
01.10	Spread footings (tally columns)	1	12" thick, 30"x30", forms, rebar, concrete	5	FA	\$46.61	\$233	\$233	\$0
01.20	Spread footings (foundation walls)	4	12" thick x 24" wide, forms, rebar, direct chute	43	LF	\$13.53	\$582	\$582	\$0
01.20	Spread footings (basement walls)	5	12" thick x 24" wide, forms, rebar, direct chute, PVC 6" gravel drainbed	352	LF	\$16.47	\$5806	\$5806	\$0
01.30	Foundation Wall (4" high)	1	Poured-8", blind/damp, sill plates	230	LF	\$20.17	\$4640	\$4640	\$0
01.40	Excavation: Foundation Wall Footing	2	4' depth spread fill excav, sand/gravel, backfill, no compact, rough grade	345	SF	\$20.33	\$7015	\$7015	\$0
01.40	Excavation: Foundation Wall Footing	1	No additional special foundations	345	SF	\$0.00	\$0	\$0	\$0

02 Slab/Structure

02 Slab on Grade

02.10	Ground Floor Slab on Grade	3	Not Used	0	SF	\$0.00	\$0	\$0	\$0
02.10	Garage Floor Slab on Grade	1	4" slab w/1/2" gravel base, 6 mil vap, expand mat, W1.4/M1.4, steel towel fins	864	SF	\$2.69	\$2328	\$2328	\$0
02.10	Basement Slab on Grade	3	4" slab w/1/2" gravel base, 6 mil vap, expand mat, W1.4/M1.4, steel towel fins	3,198	SF	\$2.69	\$8617	\$8617	\$0
02.10	Basement Slab Insulation	1	Not Used	0	SF	\$0.00	\$0	\$0	\$0
02.20	Excavations: Basement	3	Wall/out. Stand & gravel excav, backfill, compaction 8" lifts, rough grade	1,066	CY	\$5.75	\$6,125	\$6,125	\$0
02.20	Off Site Truck	1	Assumes off-site hauling NOT required (Assumes on site placement of spoils)	0	CY	\$0.00	\$0	\$0	\$0
02.30	Basement Walls	1	Poured-8", blind/damp, sill plates	1,821	BWA	\$5.30	\$9,643	\$9,643	\$0
02.30	Partial Height Basement Wall Framing	1	Not Used	1,821	BWA	\$0.00	\$0	\$0	\$0
02.30	Basement Wall Insulation	1	None	1,821	BWA	\$0.00	\$0	\$0	\$0

Baseline Selections

FIGURE 6a

HOME SPECIFIC QUALITY/COST SELECTIONS									
237 System Sections		Section Switches		TOTAL FINISHED AREA: 4,770 SF		MASTER/BASELINE RCH		P21	
© 2002 Project Planning & Management, Inc.				TOTAL CONSTRUCTED AREA: 8,383 SF		Bement City, WI			
						4 Beddington, WI			
SUBSYSTEM		quan		unit		unit \$		total \$	
011 Foundation									
011 Standard Foundations									
011.10	Spread footings (timber columns)	1	12" thick-30"x30", forms, rebar, concrete	9	NCOLIS	\$46.61	\$419	\$419	\$0
011.10	Spread footings (ply columns)	1	12" thick-30"x30", forms, rebar, concrete	5	EA	\$46.61	\$233	\$233	\$0
011.20	Spread footings (foundation walls)	4	12" thick x 24" wide, forms, reinf, direct chute	43	LF	\$13.53	\$582	\$582	\$0
011.20	Spread footings (basement walls)	5	12" thick x 24" wide, forms, reinf, direct chute, PVC 6" gravel wrapped	352	LF	\$18.47	\$6,505	\$6,505	\$0
011.30	Foundation Wall (4' high)	1	Poured 8", bitumendamp, sill plates	80	LF	\$20.17	\$1,614	\$1,614	\$0
011.40	Excavation: Foundation Wall Footing	2	4' depth spread fig excava, sand/gravel, backfill, no compact, rough grade	195	SF	\$0.39	\$77	\$77	\$1,536
012 Special Foundations		1	No additional special foundations	195	SF	\$0.00	\$0	\$0	\$0
021 Slab on Grade									
021.00	Ground Floor Slab on Grade	3	Not Used	0	SF	\$0.00	\$0	\$0	\$0
021.00	Garage Floor Slab on Grade	1	4" slab w/4" gravel base, 6 mil vap, expand mat, W/1.4W/1.4, steel bowed fins	864	SF	\$2.69	\$2,328	\$2,328	\$0
021.00	Basement Slab on Grade	3	4" slab w/4" gravel base, 6 mil vap, expand mat, W/1.4W/1.4, steel bowed fins	3,198	SF	\$2.69	\$8,617	\$8,617	\$0
021.10	Basement Slab Insulation	1	Not Used	0	SF	\$0.00	\$0	\$0	\$0
022 Excavation: Basement									
022.00	Off Site Trucking	3	<RESELECT> Must Select "1" or "2" Full Basement Option	1,066	CY	\$0.00	\$0	\$0	\$0
022.00	Off Site Trucking	1	Assumes off-site hauling NOT required (Assumes on site placement of spoils)	0	CY	\$0.00	\$0	\$0	\$0
023 Basement Walls									
023.00	Partial Height Basement Wall Framing	1	Poured 8", bitumendamp, sill plates	3,171	BWA	\$5.30	\$16,792	\$16,792	\$0
023.10	Basement Wall Insulation	1	Not Used	0	BWA	\$0.00	\$0	\$0	\$0
023.10	Basement Wall Insulation	1	None	3,171	BWA	\$0.00	\$0	\$0	\$0

Alternate Selections illustrating self documenting line item changes to component costs and Self-Correcting feature (Line 022 Basement Excavation) wherein "ERROR" was triggered when "Walkout Basement" was deselected in '40' Design Characteristics, requiring selection of Full Basement excavation options.

FIGURE 6b

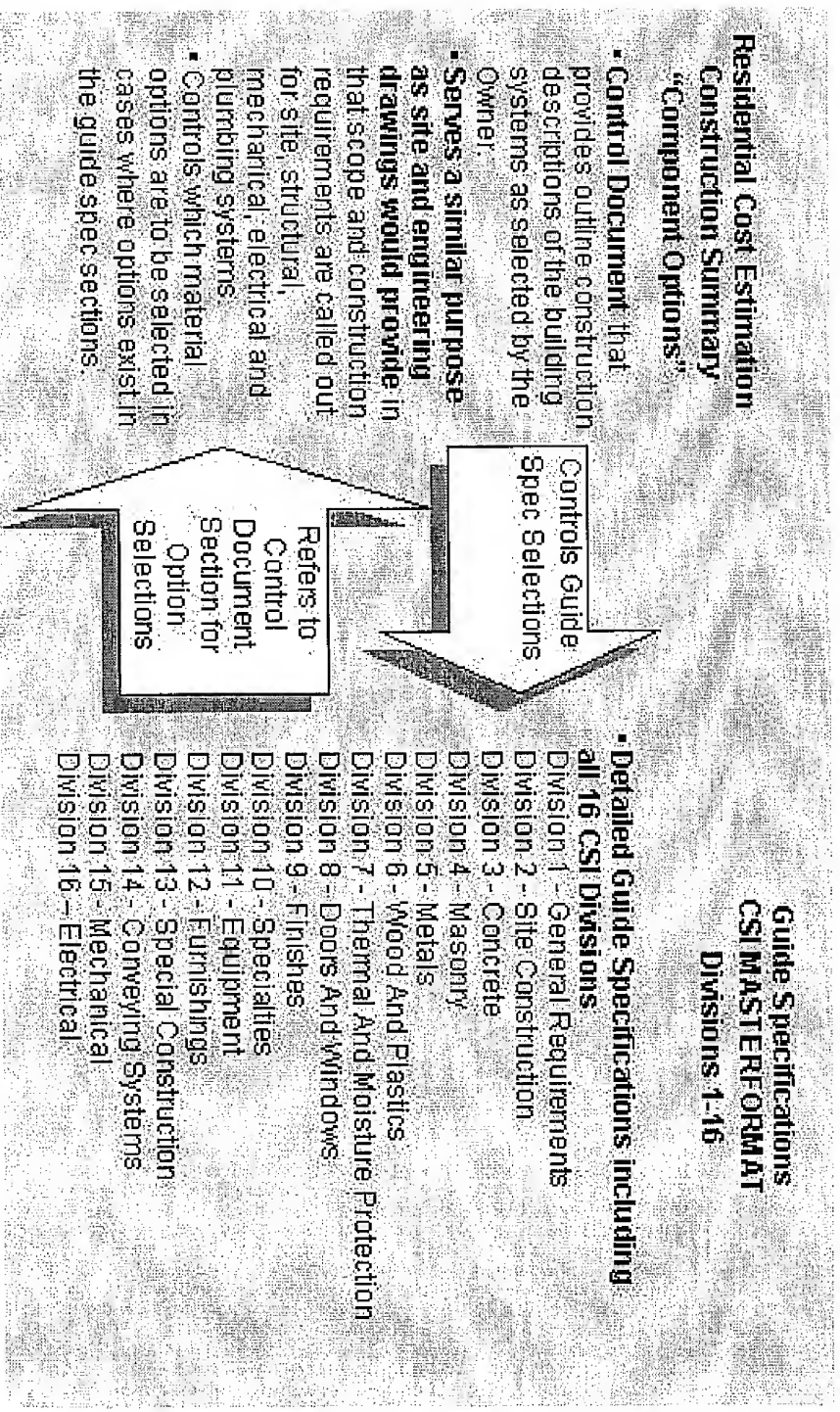


FIGURE 7